REMARKS/ARGUMENTS

Claims 9-37 are active. Independent Claim 9 tracks and finds support in original Claim 1. The term "nonflocculent" has been further characterized in view of pages 7-9 of the specification, see e.g., page 8, lines 6-20. The particular carriers of Claims 10-12 also find support in original Claim 1. The beads of Claim 13 are described, for instance, on page 10, line 13, of the specification. The wine and beer yeasts of Claims 14 and 15 are described in original Claims 16 and 17 and the particular yeast species of Claims 16 and 17 on page 6, lines 16-17, of the specification. The various bioreactors of Claims 18-22 are described in the disclosure on page 11, lines 10-13. Page 15, lines 3-4, describe the fermentation liquids of Claims 23-26. The fermented products of Claims 27-32 are described, for instance, on page 15, lines 14-21. The method of Claim 33 finds support in original Claims 1 and 4. Claims 34-37 find support in original Claims 5-7. Accordingly, the Applicants do not believe that any new matter has been added. Favorable consideration is respectfully requested.

Rejection—35 U.S.C. 112, second paragraph

Claims 1-8 were rejected under 35 U.S.C. 112, second paragraph as being indefinite as to the scope of the term "non-flocculent yeast". This rejection is moot in view of the amended claim language which further characterizes the non-flocculent cells of the invention. The claim language has been amended for clarity and without acquiescence that the prior language was indefinite. The recitation of particular test steps is not intended to limit the methods to strains which have been actually been tested by the recited test steps. That is, the claimed methods encompass the use of any yeast strain which, if and when, it is tested, would satisfy these test steps. The test steps are described on pages 7-9 of the specification.

Rejection—35 U.S.C. 102

Claims 1, 2 and 5 were rejected under 35 U.S.C. 102(b) as being anticipated by Ogbonna et al., Process Biochem. 31(8):737-44. This rejection is moot in view of the cancellation of these claims. The Applicants submit that it would not apply to the new claims for the following reasons.

Unlike the present invention, the method of Ogbonna uses yeast (*Candida brassicae*) which is immobilized on the bed of a loofa sponge and not immobilized on an immobilizing carrier of chitosan, alginic acid or carrageenan, as required by independent Claim 9. While Ogbonna mentions the addition of chitosan, chitosan is only added as a flocculent and not as an immobilizing carrier. Unlike the loofa sponge carrier of the cited prior art, Claim 9 requires that the non-flocculent yeast be immobilized to an immobilizing carrier selected from the group consisting of chitosan, alginic acid or carrageenan.

The method of independent Claim 33 is distinct from that of Ogbonna. The immobilization step of Claim 33 does not require a flocculent and the bioreactor is structurally distinct from that used by Ogbonna. Ogbonna neither discloses or suggests using a fluidized bed reactor. For instance, Ogbonna uses a fixed bed type reactor (loofa sponge) and not a fluidized bed reactor as required by Claim 33.

Accordingly, the present claims are not anticipated by Ogbonna.

Rejection—35 U.S.C. 102

Claim 8 was rejected under 35 U.S.C. 102(b) as being anticipated by Ogbonna et al., Process Biochem. 31(8):737-44. This rejection is moot in view of the cancellation of Claim 8.

Rejection—35 U.S.C. 103

Claims 1, 2 and 5 were rejected under 35 U.S.C. 103(a) as being unpatentable over Umemoto, JP 411075883 (English Abstract), in view of Ogbonna et al., Process Biochem. 31(8):737-44. This rejection is moot in view of the cancellation of Claims 1, 2 and 5 and would not apply to the new claims for the following reasons.

The cited prior art, alone or in combination, does not disclose or suggest a method using a non-flocculent yeast immobilized in a bioreactor on an immobilizing carrier which is chitosan, alginic acid or carrageenan, or suggest specifically selecting a nonflocculent yeast for use in combination with a fluidized bed reactor.

Umemoto does not disclose or suggest a method involving the selection and use of non-flocculent yeast, nor suggest immobilizing non-flocculent yeast on an immobilizing carrier of chitosan, alginic acid or carrageenan. Unlike the method of Umemoto, the selection of non-flocculent yeast is required by the present invention. As described on page 2, line 22-page 3, line 14, of the specification, it was conventionally known that it was required to use a flocculent yeast for making a fermentation product, such as beer. On the other hand, the present invention requires the use of non-flocculent yeast.

Ogbonna also does not suggest specifically selecting non-flocculating yeast, immobilizing non-flocculating yeast on a carrier of chitosan, alginic acid or carrageenan in a bioreactor, or disclose, suggest a fluidized bed reactor or suggest specifically selecting nonflocculating cells for use in a fluidized bed reactor.

Assuming that there were some suggestion in the prior art to use a nonflocculent yeast in combination with a fluidized bed reactor, there would have been no recognition of the superior properties obtained by the combination or a reasonable expectation of success of obtaining the superior process of the present invention. The present invention, which requires the selection of nonflocculent yeast, provides a superior process, such as a process

that achieves a high level of floating yeast cells at the completion of fermentation, that maintains a constant fermentation rate, or that reduces the level of diacetyl in the fermentation products.

Table 4 on page 22 (reproduced below) shows that methods using non-flocculent strains NA-3 and NA-4 had significantly higher numbers of floating yeast cells upon the end of primary fermentation, compared to a method using flocculent strain A-2. Increasing the number of floating yeast cells upon the completion of primary fermentation provides a more stable and controllable process, see page 2, and lines 19-21, of the specification.

Table 4

	NUMBER OF FLOATING YEAST CELLS UPON THE END OF PRIMARY FERMENTATION (10^6 cells/ml)				
NUMBER OF FERMENTATION TIMES	1	2	3	4	AVERAGE
NA-3	24	23	39	28	**28.5**
NA-4	29	33	30	18	**27.5**
A-2	5	12	25	31	18.3

Table 5 on page 23 of the specification, reproduced below, shows that methods using the two non-flocculent strains, NA-3 and NA-4, reduced the amount of diacetyl significantly compared to a method using flocculent strain A-2. A high concentration of diacetyl causes a raw odor or immature odor which is organoleptically undesirable, see page 2, lines 13-16, of the specification.

Table 5

NUMBER OF FERMENTATION TIMES	AMOUNT OF DA UPON THE END OF PRIMARY FERMENTATION (ppm) 1	2	3	4	5	6	7	AVERAGE*2
NA-3	0.42	0.36	0.36	0.33	0.60	0.38	0.41	**0.41**
NA-4	0.55	0.49	0.39	0.42	0.37	0.44	0.42	**0.44**
A-2	0.53	0.42	0.98	0.49	1.27	0.90	0.78	0.77

*2: normal level: about 0.4 ppm

Accordingly, the Applicants respectfully request that this rejection be withdrawn as the prior art does not suggest, provide a reasonable expectation of success for, or disclose the present invention or the superior properties of the invention.

CONCLUSION

In view of the above amendments and remarks, the Applicants respectfully submit that this application is now in condition for allowance. Early notification to that effect is earnestly solicited.

Respectfully submitted,

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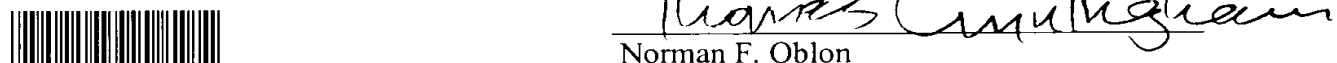

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